IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Werner Agne
Serial No.:	09/925,004
Date Filed:	August 8, 2001
Examiner:	Qin, Yixing
Group Art Unit:	2625
Confirmation No.:	3612
Title:	**DATA TRANSMISSION SYSTEM HAVING DISTRIBUTED CONTROL FUNCTIONALITY**

MAIL STOP – APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Further to the notice of appeal submitted on November 26, 2007, Appellant hereby submits this appeal brief according to §41.37.

APPELLANT'S BRIEF (37 C.F.R. § 41.37)

This brief is submitted in support of Appellant's notice of appeal from the decision dated October 30, 2007, of the Examiner finally rejecting claims 6-20 of the subject application.

I. REAL PARTY IN INTEREST

This application is currently owned by Siemens Aktiengesellschaft, as indicated by an assignment recorded on December 6, 2001, in the Assignment Records of the United States Patent and Trademark Office at Reel 012357, Frame 0120.

II. RELATED APPEALS AND INTERFERENCES

There are no known appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision regarding this appeal.

III. STATUS OF CLAIMS

Claims 6-20 are pending in this application and all stand rejected under a Final Office Action mailed July 27, 2007. Appellant's presents Claims 6-20 for appeal. Appendix A shows all pending claims.

IV. STATUS OF AMENDMENTS

No amendments have been filed subsequent to final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent Claim 6 recites a data transmission system for use in a machine, comprising a plurality of drive systems (A1..A10; A12..A21; A22..A25; A26..A35) each comprising an associated control functional unit (LF1; LF2; LF3; LF4) wherein each control functional unit (LF1; LF2; LF3; LF4) only controls the drive system (A1..A10; A12..A21; A22..A25; A26..A35) to which it is associated, (Specification, page 5, paragraph [0013])

control computers (L1; L2; L3; L4) associated to each drive system (A1..A10; A12..A21; A22..A25; A26..A35) linked through a first control network (LK1, LK2, LK3) and coupled with said control functional units (LF1; LF2; LF3; LF4) to perform high level process control; (Specification, page 5, paragraph [0014])

a second independent network (Q1, Q2, Q3) interconnecting said control functional units (LF1; LF2; LF3; LF4) for real time cross-communication there between, (Specification, page 6, paragraph [0016])

whereby information relating to movement control from any one of said control functional units (LF1; LF2; LF3; LF4) is simultaneously transmitted to all of the other of said control functional units (LF1; LF2; LF3; LF4). (Specification, page 6, paragraph [0016])

Independent Claim 15 recites a data transmission system for use in a printing machine having a distributed control functionality and a networked complex movement control, comprising:

a plurality of drive systems (D1, D2, D3, F) each having a plurality of drive regulators (A1..A10; A12..A21; A22..A25; A26..A35) arranged in a group, wherein all drive regulators (A1..A10; A12..A21; A22..A25; A26..A35) arranged in a group are linked by an associated ring network and each drive system (D1, D2, D3, F) comprises an associated control functional unit (LF1; LF2; LF3; LF4) wherein each control functional unit (LF1; LF2; LF3; LF4) only controls the drive system (D1, D2, D3, F) to which it is associated; (Specification, page 5, paragraph [0013])

a plurality of control computers (L1; L2; L3; L4) each coupled through a first control network (LK1, LK2, LK3) with an associated control functional unit (LF1; LF2; LF3; LF4); (Specification, page 5, paragraph [0014])

a second independent network (Q1, Q2, Q3) interconnecting said control functional units (LF1; LF2; LF3; LF4) for real time cross-communication there between, (Specification, page 6, paragraph [0016])

whereby information relating to movement control from any one of said control functional units (LF1; LF2; LF3; LF4) is simultaneously transmitted to all of the other of said

control functional units (LF1; LF2; LF3; LF4) through said second network (Q1, Q2, Q3). (Specification, page 6, paragraph [0016])

Independent Claim 18 recites a data transmission system for use in a machine having a plurality of drive systems, comprising

a plurality of control functional units (LF1; LF2; LF3; LF4) each control functional unit (LF1; LF2; LF3; LF4) being associated to only one drive system (D1, D2, D3, F), (Specification, page 5, paragraph [0013])

a plurality of control computers (L1; L2; L3; L4) each control computer (L1; L2; L3; L4) being associated to only one drive system (D1, D2, D3, F) and the plurality of control computers (L1; L2; L3; L4) being linked through a control network (LK1, LK2, LK3) and coupled with said control functional units (LF1; LF2; LF3; LF4) to perform high level process control; (Specification, page 5, paragraph [0014])

an independent Ethernet network (Q1, Q2, Q3) interconnecting said control functional units (LF1; LF2; LF3; LF4) for real time cross-communication there between, (Specification, page 6, paragraph [0016])

whereby information relating to movement control from any one of said control functional units (LF1; LF2; LF3; LF4) is simultaneously transmitted to all of the other of said control functional units (LF1; LF2; LF3; LF4). (Specification, page 6, paragraph [0016])

Independent Claim 19 recites a data transmission system for use in a printing machine having a distributed control functionality and a networked complex movement control, comprising:

a plurality of drive systems (D1, D2, D3, F) each having a plurality of drive regulators (A1..A10; A12..A21; A22..A25; A26..A35) arranged in a group, wherein all drive regulators (A1..A10; A12..A21; A22..A25; A26..A35) arranged in a group are linked by an associated ring network and each drive system (D1, D2, D3, F) comprises an associated control functional unit (LF1; LF2; LF3; LF4) wherein each control functional unit (LF1; LF2; LF3;

LF4) only controls the drive system (D1, D2, D3, F) to which it is associated; (Specification, page 5, paragraph [0013])

a plurality of control computers (L1; L2; L3; L4) each coupled through a control network (LK1, LK2, LK3) with an associated control functional unit (LF1; LF2; LF3; LF4); (Specification, page 5, paragraph [0014])

an independent Ethernet network (Q1, Q2, Q3) interconnecting said control functional units (LF1; LF2; LF3; LF4) for real time cross-communication there between, (Specification, page 6, paragraph [0016])

whereby information relating to movement control from any one of said control functional units (LF1; LF2; LF3; LF4) is simultaneously transmitted to all of the other of said control functional units (LF1; LF2; LF3; LF4) through said second network (Q1, Q2, Q3). (Specification, page 6, paragraph [0016])

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 6-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,343,549 issued to Shizurou Tokiwa ("Tokiwa") in view of U.S. Patent 5,947,023 issued to Wolfgang Bohrer et al. ("Bohrer et al.").

VII. ARGUMENT

Independent Claims 6, 15, 18, and 19

The Examiner stated that that Tokiwa discloses (as in claim 6 of the present application) a data transmission system for use in a machine, comprising a plurality of drive systems each comprising an associated control functional unit wherein each control functional unit only controls the drive system to which it is associated. The Examiner further correctly analyzed that Tokiwa does not disclose the remaining limitation of claim 6:

> *control computers associated to each drive system linked through a first control network and coupled with said control functional units to perform high level process control;*

a second independent network interconnecting said control functional units for real time cross-communication there between,

whereby information relating to movement control from any one of said control functional units is simultaneously transmitted to all of the other of said control functional units.

The Examiner then states that *Tokiwa*, however, discloses in column 3, lines 30-35 that if one loop of the network failed the other of the network line 5 can still be used to communicate. The Examiner made not clear to which element of the independent claims this teaching refers. It is, however, respectfully disagreed that this argument is relevant. Applicant is not claiming a redundant network. Applicant claims a first network that links the control computers with the control functional units and a second network that interconnects the functional units for real time cross communication. *Tokiwa* does not disclose such an arrangement. According to *Tokiwa* the functional units cannot communicate with each other let alone communicate in real time cross communication. To this end Tokiwa states:

> **Furthermore, the network line 5 is formed into a loop shape so that should any one of the network line 5 fail, signal communication between the master control sections 1 and 2 and #11~#18, #21~#28, #31~#38, and #41~#48 of the slave control sections 3 can be maintained via the other of the network line 5.**

Tokiwa, col. 3, lines 30-35. Thus, only the master units communicate with the functional units.

Alternatively, the Examiner stated that Bohrer teaches in col. 5, lines 32-36 that there are two buses, a parameterization and a synchronization bus. Again, Applicant respectfully likes to point out that this teaching is also irrelevant to the above limitation. Bohrer also does not disclose control computers coupled to a plurality of functional units via a first network

and a second network that couples the functional units to be able to communicate in real time cross communication.

Furthermore, the Examiner stated that Bohrer discloses control functional units in the form of control units 50 in Fig. 4. The Examiner explicitly states that the control units 50 can read upon the plurality of computer control units being associated to only one drive system. Furthermore, the Examiner states that Bohrer discloses in col. 7, lines 14-50 the implementation of a redundant design which allegedly means that the plurality of devices 50 of Bohrer are associated with only one drive system as seen in Fig. 4. Applicant respectfully disagrees.

Bohrer merely teaches that a higher level device 50 operates according to a master slave principle. See Bohrer, col. 6, lines 30-31. The master device is the higher level device 50 and the slave device is the drive unit itself. Bus 44 is used to perform communication between this master and slave unit. According to the Examiner the higher level device 50 compares to the functional units of the independent claims. However, Bohrer fails to teach that there are multiple of these higher level devices 50 that communicate with each other in real time cross communication.

The Examiner stated that a redundant design as disclosed in col. 7, lines 14-50 of Bohrer provides for this limitation. Applicant respectfully disagrees. Fig. 4 shows the associated structure of such a redundant design. Bohrer clearly discloses that each higher level device 50 controls a plurality of drive systems and that there is no communication between the higher level devices 50.

The Examiner stated in the section "Response to Arguments" that the various printing stations 14 can be interpreted as a single drive system. Applicant respectfully disagrees. Even if the various printing stations are interpreted as a single drive system, Bohrer still fails to teach a communication between the unit 50 on the left side and the unit 50 on the right side, let alone a real time cross communication between these units.

In the Advisory Action dated October 30, 2007, the Examiner stated that "*Bohrer discloses in column 7 line 65 - column 8 line 36 that either control unit 50 can control any drive unit because of the redundant design of the system.*" Advisory Action, page 2, lines 7-9. Applicant respectfully disagrees. *Bohrer* never states that the two separately implemented

networks 44 as shown, for example, in fig. 4 of *Bohrer* are redundant. On the contrary, *Bohrer* merely states that the arrangement with two separate networks 44 allows for synchronization of the drives with one of two folding stations 16 or 18. *See, Bohrer*, col. 7, line 65 to col. 8, line 12. To this end, the first network 44 is coupled with folding station 16 whereas the second network is coupled with folding station 18. *Id. Bohrer* particularly states that the machine operator can implement the assignment of one printing station to two folding units 16 and 18. *See, Bohrer*, col. 8, lines 9-12. Hence, contrary to the examiner's assumption that there must be a communication link between the two control devices 50, *Bohrer* explicitly does not disclose such a link and explains that an operator assigns the drives to another control unit 50 in case one folding unit 16 fails to operate. *See, Bohrer*, col. 8, line 19-34.

Hence, Applicant believes that the independent claims 6, 15, 18, and 19 are not rendered obvious by the cited prior art.

Dependent Claims

Applicant respectfully submits that the dependent Claims are allowable at least to the extent of the independent Claim to which they refer, respectively. Thus, Applicant respectfully requests reconsideration and allowance of the dependent Claims.

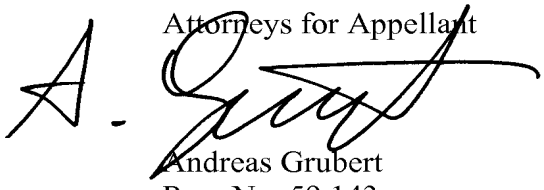
SUMMARY

Appellant authorizes the Commissioner to charge $510.00 for the Appeal Brief to Deposit Account No. 50-2148 of Baker Botts L.L.P. Appellant believes there are no additional fees due at this time, however, the Commissioner is hereby authorized to charge any fees necessary or credit any overpayment to Deposit Account No. 50-2148 of Baker Botts L.L.P.

If there are any matters concerning this Application that may be cleared up in a telephone conversation, please contact Appellant's attorney at 512.322.2545.

Respectfully submitted,

BAKER BOTTS L.L.P.
Attorneys for Appellant



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APPENDIX A - CLAIMS INVOLVED IN APPEAL

1-5. (Cancelled)

6. (Previously Presented) A data transmission system for use in a machine, comprising

a plurality of drive systems each comprising an associated control functional unit wherein each control functional unit only controls the drive system to which it is associated,

control computers associated to each drive system linked through a first control network and coupled with said control functional units to perform high level process control;

a second independent network interconnecting said control functional units for real time cross-communication there between,

whereby information relating to movement control from any one of said control functional units is simultaneously transmitted to all of the other of said control functional units.

7. (Previously Presented) The data transmission system according to claim 6, wherein the real-time cross-communication can be carried out using Ethernet links.

8. (Previously Presented) The data transmission system according to claim 6, wherein the control functional units can be synchronized by means of Ethernet real-time cross-communication.

9. (Previously Presented) The data transmission system according to claim 6, wherein data and synchronization signals from drive regulators can be interchanged with an associated control functional unit using Ethernet real-time communication.

10. (Previously Presented) The data transmission system according to claim 6, wherein the machine is a printing machine.

11. (Previously Presented) The data transmission system according to claim 6, wherein each drive system comprises a plurality of drive regulators coupled with each respective control functional unit.

12. (Previously Presented) The data transmission system according to claim 11, wherein the drive regulators of one drive system are linked through a third network selected from the group consisting of a ring network, a serial network, and a star network.

13. (Previously Presented) The data transmission system according to claim 12, wherein the third network is a real-time Ethernet network.

14. (Previously Presented) The data transmission system according to claim 6, wherein the first network is used to transmit non-time critical data or parameters.

15. (Previously Presented) A data transmission system for use in a printing machine having a distributed control functionality and a networked complex movement control, comprising:

a plurality of drive systems each having a plurality of drive regulators arranged in a group, wherein all drive regulators arranged in a group are linked by an associated ring network and each drive system comprises an associated control functional unit wherein each control functional unit only controls the drive system to which it is associated;

a plurality of control computers each coupled through a first control network with an associated control functional unit;

a second independent network interconnecting said control functional units for real time cross-communication there between,

whereby information relating to movement control from any one of said control functional units is simultaneously transmitted to all of the other of said control functional units through said second network.

16. (Previously Presented) The data transmission system according to claim 15, wherein the real-time cross-communication can be carried out using Ethernet links.

17. (Previously Presented) The data transmission system according to claim 15, wherein data as well as synchronization signals from the control functional units can be exchanged with said drive regulators by means of Ethernet real-time cross-communication.

18. (Previously Presented) A data transmission system for use in a machine having a plurality of drive systems, comprising

a plurality of control functional units each control functional unit being associated to only one drive system,

a plurality of control computers each control computer being associated to only one drive system and the plurality of control computers being linked through a control network and coupled with said control functional units to perform high level process control;

an independent Ethernet network interconnecting said control functional units for real time cross-communication there between,

whereby information relating to movement control from any one of said control functional units is simultaneously transmitted to all of the other of said control functional units.

19. (Previously Presented) A data transmission system for use in a printing machine having a distributed control functionality and a networked complex movement control, comprising:

a plurality of drive systems each having a plurality of drive regulators arranged in a group, wherein all drive regulators arranged in a group are linked by an associated ring network and each drive system comprises an associated control functional unit wherein each control functional unit only controls the drive system to which it is associated;

a plurality of control computers each coupled through a control network with an associated control functional unit;

an independent Ethernet network interconnecting said control functional units for real time cross-communication there between,

whereby information relating to movement control from any one of said control functional units is simultaneously transmitted to all of the other of said control functional units through said second network.

20. (Previously Presented) The data transmission system according to claim 6, wherein each drive system comprises a plurality of drives and associated drive regulators arranged in a group, wherein all drive regulators arranged in a group are linked by an associated ring network.

APPENDIX B - EVIDENCE

NONE

APPENDIX C: RELATED PROCEEDINGS

NONE